



• проста для вивчення та розуміння мова

### Для чого використовується

- Для аналізу даних
- Для візуалізації даних
- Для машинного навчання
- Для розробки програмного забезпечення & веброзобки 1 0 0 0 1 0 0 0 1 1 1

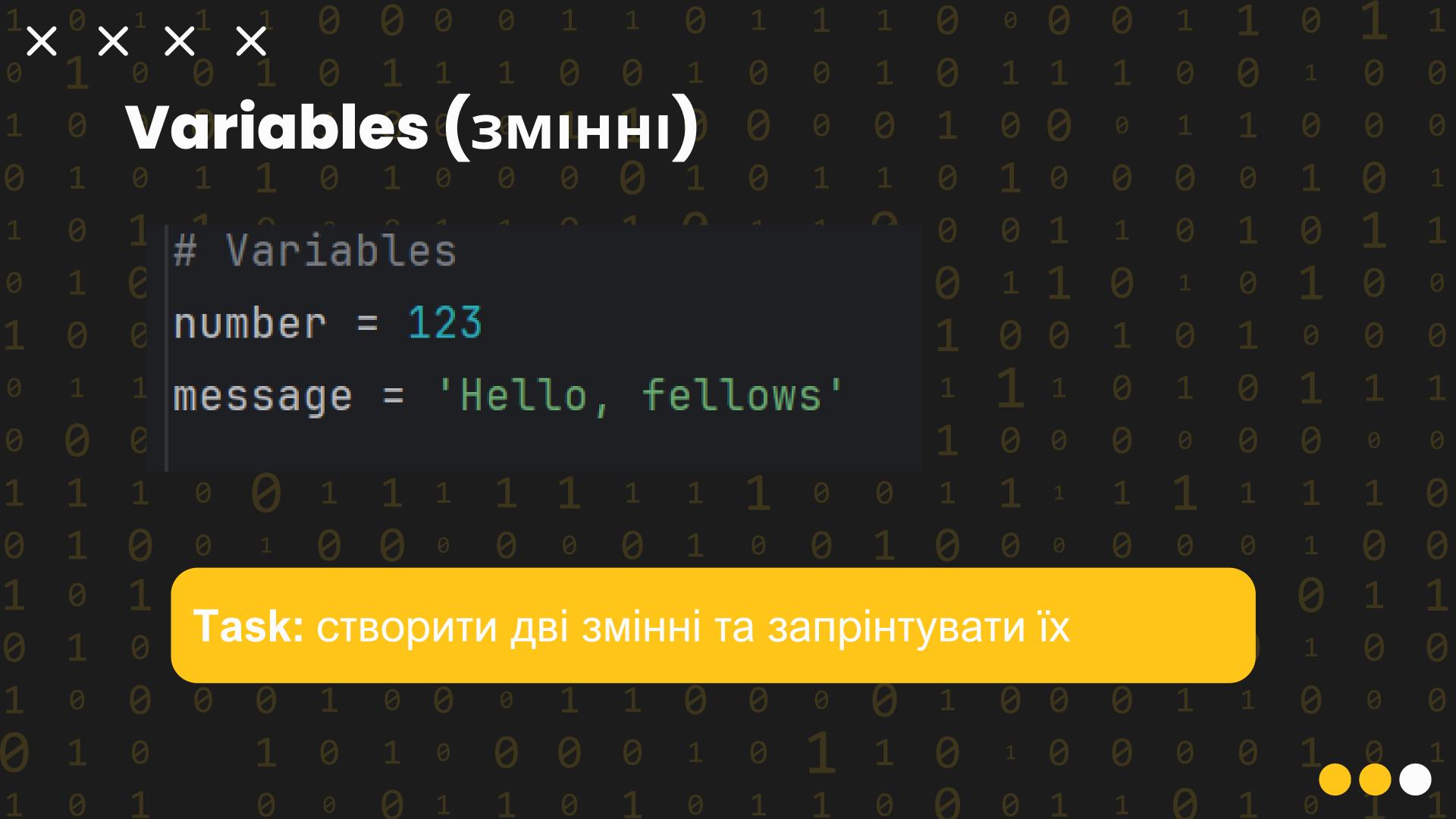
#### Чому пайтон о програма - набір команд, інструкцій Pick up catalog Open catalog at the middle Look at card If person is on card File Exist! Else if person is earlier in catalog Open to middle of bottom half of catalog Go back to line 3 Else if person is later in catalog Open to middle of upper half of catalog 10 Go back to line 3 11 12 Else Quit 13

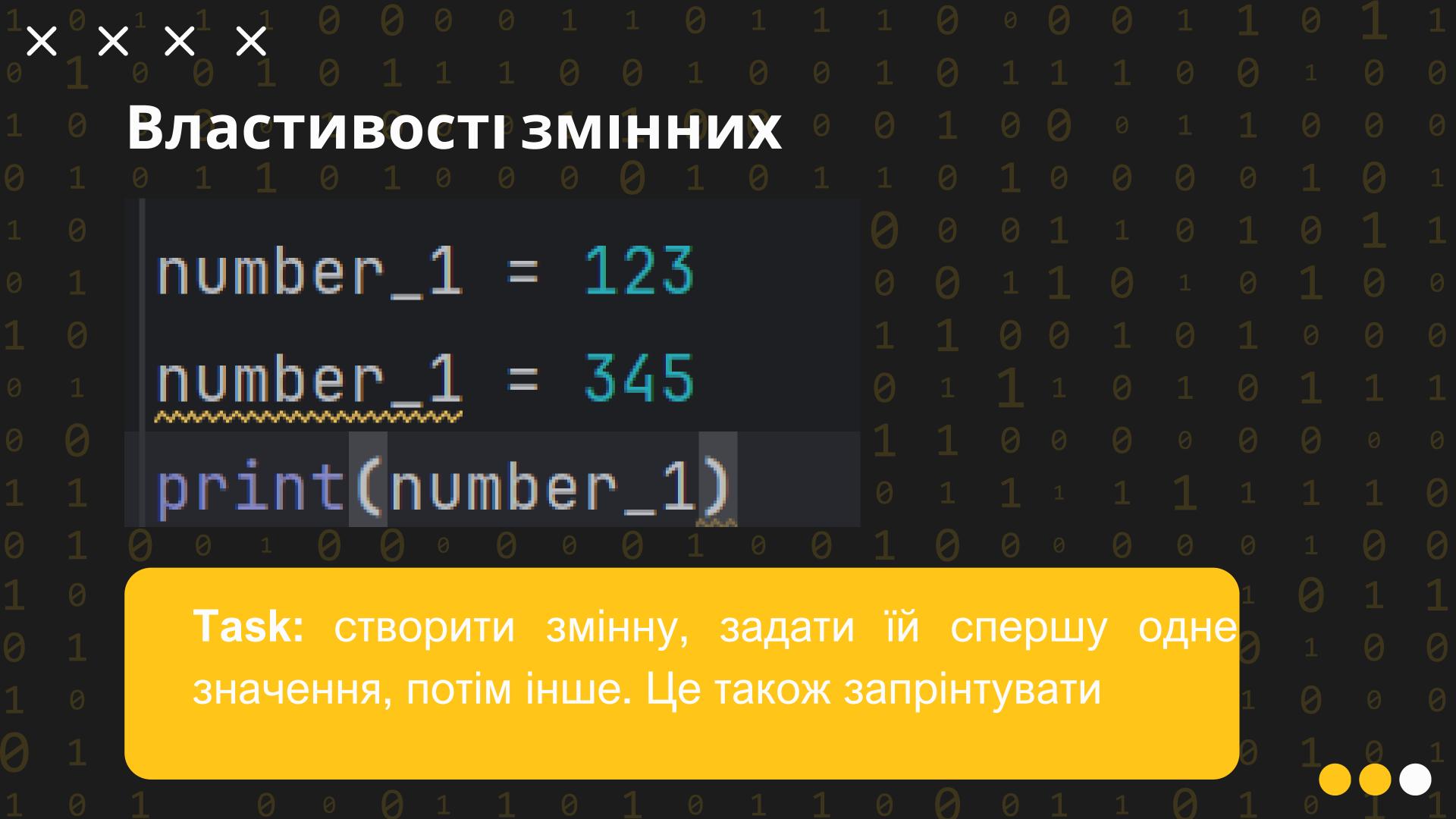
#### Python

```
def binary_search(catalog, person):
  low = 0
  high = len(catalog) - 1
  while low <= high:
    middle = (low + high) // 2
    if catalog[middle] == person:
      return True # The person is found
    elif catalog[middle] < person:</pre>
      low = middle + 1
    else:
      high = middle - 1
  return False
sample_catalog = [1, 2, 3, 4, 5, 6, 7, 8, 9, 10]
search_target = 5
found = binary_search(sample_catalog, search_target)
found
```

#### Assembler

```
START:
 mov eax, 0
                        ; Set low to 0
                        ; Set up to size of the catalog
  mov ebx, size
SEARCH_LOOP:
  cmp eax, ebx
                        ; If low is not smaller than up, we are done
  jge END
  mov ecx, eax
 add ecx, ebx
                        ; Calculate middle as (low + up) / 2
  shr ecx, 1
  ; Assume we have a function that compares the value at 'catalog[middl
  ; and returns if it's equal, less, or greater
 push ecx
  call CompareFunction
  pop ecx
  cmp CompareResult, 0
  je FILE_EXISTS
                        ; If the person is at 'catalog[middle]', we've
 cmp CompareResult, 1
  jl LOWER_HALF
  jmp UPPER_HALF
```





### Правила називання змінних

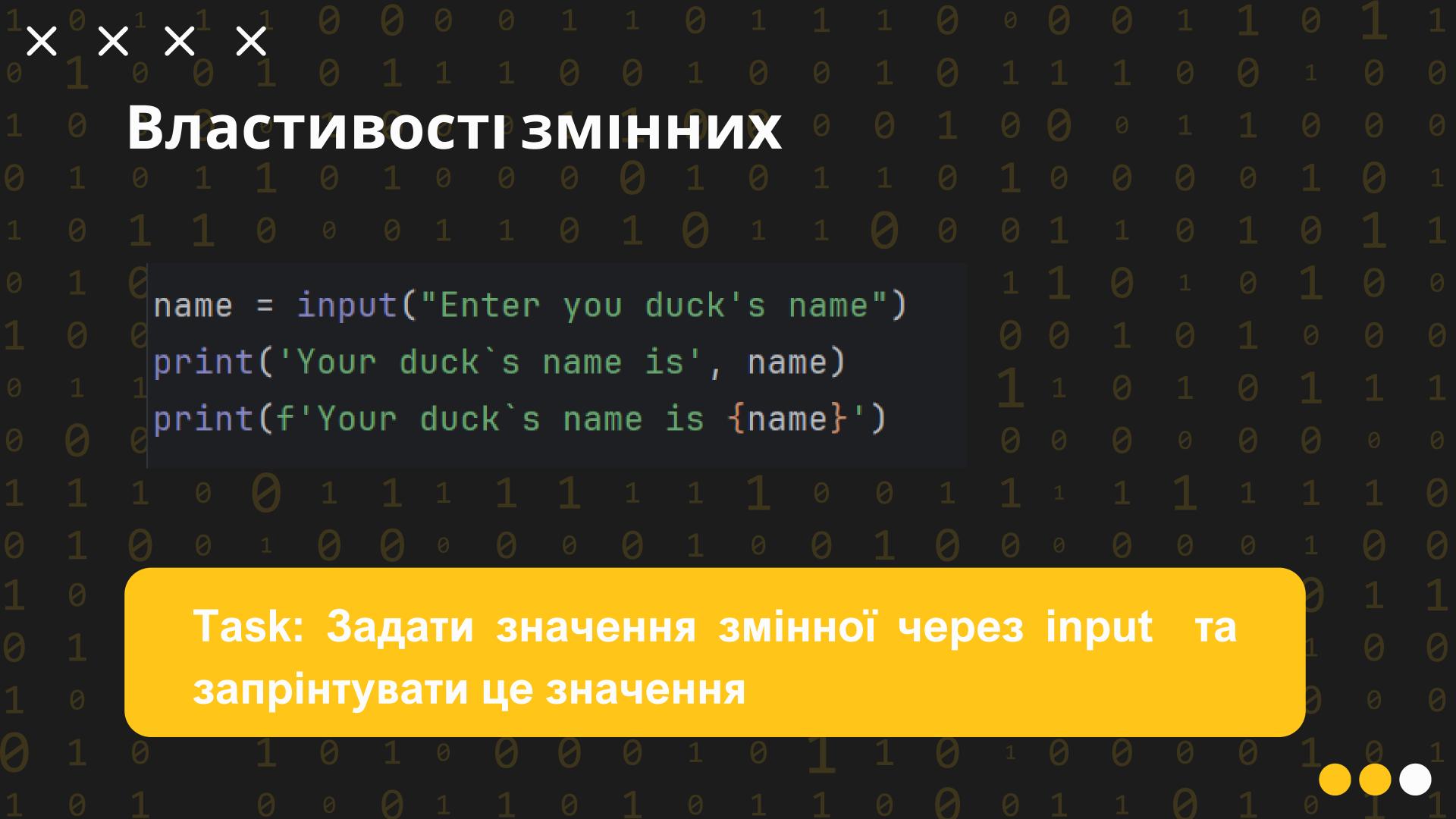
• Variable names can contain only letters, numbers, and underscores. They can start with a letter or an underscore, but not with a number.

For instance, you can call a variable message 1 but not 1 message.

• Spaces are not allowed in variable names, but underscores can be used to separate words I variable names.

For example, greeting\_message works, but greeting message will cause errors.

- Avoid using Python keywords and function names as variable names that is, do not use words that Python has reserved for a particular programmatic purpose, such as the word print.
- Variable names should be short but descriptive. For example, name is better than n,
   1 student\_name is better than s\_n, and name\_length is betterthan length\_of\_persons\_name.
- Be careful when using the lowercase letter I and the uppercase letter O because they could be confused with the numbers 1 and 0.

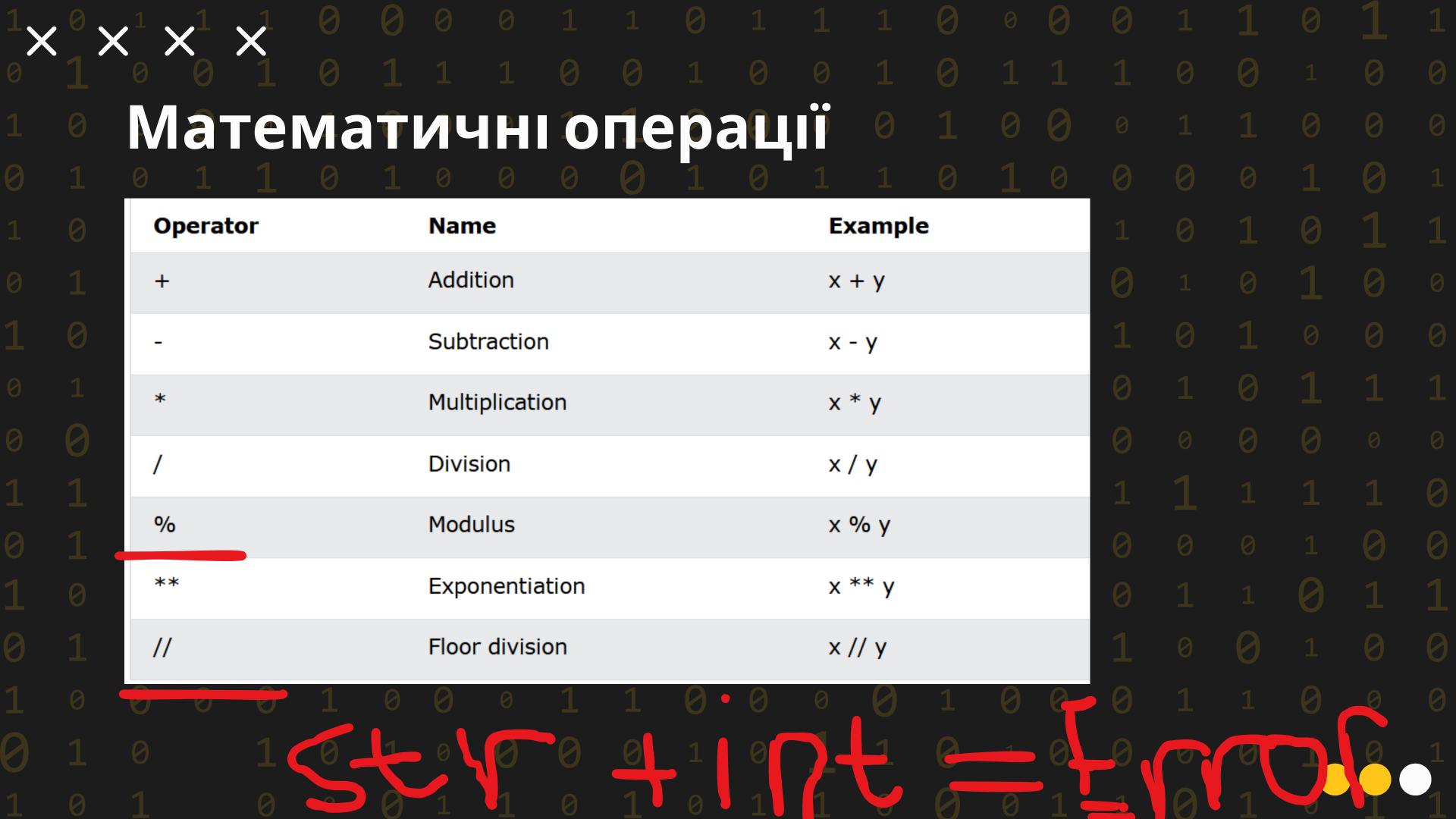


## Типи даних (основні)

- int or integer, is a whole number, positive or negative, without decimals, of unlimited length. Example, 123.
  - To get from string use: int("123")
- float or "floating point number" is a number, positive or negative, containing one or more decimals.. Example, 123.823.
  - To get from string use: float("123.823")
- string text values. Example "This is a string value".
  - To convert something to string use: str(123)
- To check data type use type()

Task: задати значення змінній number через input (число)

- перевірити тип number та запрінтувати
- змінити тип змінної на int Та запрінтувати тип
- змінити тип змінної на float та запрінтувати тип



# Час практики) Tasks for 7 minutes: **Choose at least one:** Get a number from user and print its square root to the console Get area width and length of the rectangle then return its area

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